SUPPORT FOR THE AMENDMENTS

Responsive to the Official Action, the specification has been amended to include a brief description of the drawing. The specification has also been amended to recite a claim of priority to related International and German patent applications, as set forth in the originally filed Application Data Sheet.

The present amendment cancels claims 1-7, and adds new claims 8-26.

Support for newly added claim 8 is found at specification page 3, lines 32-45, and page 4, lines 1 and 2.

Support for newly added claim 9 is found at specification page 4, lines 10-12.

Support for newly added claim 10 is found at specification page 4, lines 29-31.

Support for newly added claim 11 is found at specification page 4, lines 31 and 32.

Support for newly added claim 12 is found at specification page 4, lines 22-26.

Support for newly added claims 13-16 is found at specification page 4, lines 34-45, and page 5, lines 1-3.

Support for newly added claim 17 is found at specification page 4, lines 26-29.

Support for newly added claim 18 is found at specification page 5, line 10.

Support for newly added claim 19 is found at specification page 5, lines 23-25.

Support for newly added claims 20-22 is found at specification page 5, lines 13-21.

Support for newly added claims 23 and 24 is found at specification page 5, lines 5-7.

Support for newly added claim 25 is found at specification page 5, line 11.

Support for newly added claim 26 is found at specification page 3, lines 36 and 37.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 8-26 are currently pending in the present application. Claims 1-7 have been cancelled, and claims 8-26 have been added, by the present amendment.

The rejection of claims 1-6 under 35 U.S.C. § 103(a) as being obvious over Kan (U.S. Patent 3,631,092) is obviated by amendment with respect to new claims 8-26.

New claim 8 recites, and the specification at page 3, lines 32-36 discloses, a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in an amount of from 1.3 wt. % to less than 10 wt. % based on the total weight of phosgene and hydrogen chloride.

In contrast, Kan describes a phosgene/hydrogen chloride feed stream comprising phosgene and hydrogen chloride in a molar ratio of from 1.0:3.0 to 3.0:1.0 (i.e., 89-48 wt. % phosgene : 11-53 wt. % hydrogen chloride), and preferably from 1.0:2.0 to 1.0:1.0 (i.e., 73-58 wt. % phosgene : 27-42 wt. % hydrogen chloride) (See e.g., column 2, lines 36-39). Each of the six examples of Kan describe a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in an amount of from 27-42 wt. % (See e.g., example 1, column 4, lines 55 and 56, example 2, column 5, lines 6 and 7, example 3, column 5, lines 28 and 29, example 4, column 5, line 45, example 5, column 5, line 62, example 6, column 6, lines 19, 20, 24 and 25, and claims 1 and 11).

As a result, the phosgene/hydrogen chloride feed stream described in Kan comprises hydrogen chloride in an amount of from 11-53 wt. %, and preferably from 27-42 wt. %, which is clearly outside the claimed range of from 1.3 wt. % to less than 10 wt. % hydrogen chloride. Therefore, Kan fails to provide sufficient motivation and guidance to direct a skilled artisan to utilize a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in the claimed range of from 1.3 wt. % to less than 10 wt. %.

Even if sufficient motivation and guidance is considered to have been provided by Kan to direct a skilled artisan to utilize a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in the claimed range of from 1.3 wt. % to less than 10 wt. %, such a case of obviousness is rebutted by a showing of unexpected advantages.

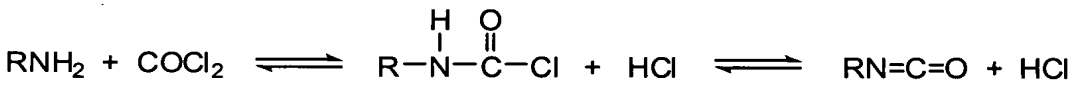
The Applicants have unexpectedly discovered that by utilizing a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in the claimed range of from 1.3 wt. % to less than 10 wt. %, the selectivity and yield of the isocyanate being produced is improved thereby reducing undesirable urea formation, and the phosgene holdup is reduced thereby reducing manufacturing costs (See e.g., present specification at page 2, lines 23-45, page 3, lines 1-10 and 29-45, page 6, lines 40-44, page 8, lines 1-4).

While wishing not to be bound to any particular theory, Applicants believe that at very low hydrogen chloride concentrations, the reaction occurs at an extremely fast rate and is unspecific, thereby resulting in the formation of significant amounts of undesirable urea and a reduction in the yield of the isocyanate being produced (page 2, lines 41-45, page 3, lines 1 and 2). At hydrogen chloride concentrations higher than 10-15 wt. %, and especially at high concentrations of 27-42 wt. % hydrogen chloride as described in Kan, increasing amounts of amine react with hydrogen chloride, as opposed to phosgene, thereby forming an amine hydrochloride salt and inhibiting the production of isocyanate.

At hydrogen chloride concentrations within the claimed range of from 1.3 wt. % to less than 10 wt. %, unspecific and undesirable urea formation is avoided because the reaction rate is decreased by the addition of hydrogen chloride, which is a reaction product of phosgenation, while amine hydrochloride salt formation is reduced, to thereby allow the amine to directly react with phosgene at a controlled rate to specifically produce isocyanate in high yield with reduced phosgene holdup.

These advantages are neither discussed, nor recognized by Kan, as evidenced by the preferred amount of hydrogen chloride within the phosgene/hydrogen chloride feed stream being from 27-42 wt. %, as described in Kan. Based on the limited disclosure of Kan, a skilled artisan could not have reasonably predicted the surprising advantages attributable to utilizing a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in the claimed range of from 1.3 wt. % to less than 10 wt. %. Had these surprising advantages been obvious to a skilled artisan, Kan would have included a hydrogen chloride content of from 1.3 wt. % to less than 10 wt. % as a preferred range, as opposed to 27-42 wt. % hydrogen chloride.

Furthermore, the advantages attributable to utilizing a phosgene/hydrogen chloride feed stream comprising hydrogen chloride in the claimed range of from 1.3 wt. % to less than 10 wt. % for increasing isocyanate yield and reducing phosgene holdup are particularly surprising since hydrogen chloride is actually generated in considerable amounts during isocyanate production, as shown hereinbelow:



Withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 1-6 under 35 U.S.C. § 103(a) as being obvious over Cooper (U.S. Patent 3,234,253) is respectfully traversed with respect to new claims 8-26.

New claim 8 recites a process for producing an isocyanate comprising *initially phosgenating* an amine with a mixture comprising *phosgene and hydrogen chloride*, wherein said amine is obtained from an amine feed stream, wherein said mixture is obtained from a phosgene/hydrogen chloride feed stream and comprises *hydrogen chloride in an amount of from 1.3 wt. % to less than 10 wt. %* based on the total weight of phosgene and hydrogen chloride present within said mixture.

As discussed in the present specification (See e.g., page 1, lines 13-17, page 3, lines 43-45, page 4, lines 1 and 2), Cooper describes a process for virtually instantaneously producing an isocyanate, wherein the process comprises *initially phosgenating*, at an extremely fast rate of reaction, an amine with *phosgene* in a first stage, wherein the amine is obtained from an amine feed stream and the phosgene is obtained from a phosgene feed stream, which is *devoid of hydrogen chloride* (column 1, lines 10-19 and 67-72, column 3, lines 31-37, and column 4, lines 27-30). Cooper also describes *subsequently introducing*, in a second stage, either a substantial amount of *hydrogen chloride gas* and a portion of the phosgene/hydrogen chloride off-gas obtained from the first stage, or a mixture of phosgene and hydrogen chloride mixed in proper proportions, whereby the total composition of the gaseous mixture present within the second stage comprises *hydrogen chloride in an amount that is shifted toward pure hydrogen chloride, but is at least 42 wt. % hydrogen chloride* (See e.g., column 2, lines 10-19 and 40-50, column 3, lines 9-22 and 40-48, column 4, lines 4, 5 and 27-30).

Therefore, the process of Cooper is clearly different from the process of the present invention. The process of the present invention involves *initially phosgenating* an amine with a mixture comprising *phosgene and hydrogen chloride*, to selectively produce the isocyanate in high yield. In contrast, the process of Cooper involves virtually instantaneously producing an isocyanate, wherein the process comprises *initially phosgenating* an amine with *phosgene*, which is *devoid of hydrogen chloride*. As a result, unlike the present invention, Cooper fails to disclose or suggest *initially phosgenating* an amine with a mixture comprising *phosgene and hydrogen chloride*. In addition, the phosgene/hydrogen chloride feed stream of the present invention comprises *from 1.3 wt. % to less than 10 wt. % hydrogen chloride* based on the total weight of phosgene and hydrogen chloride present within the mixture. In contrast, the gaseous mixture of Cooper comprises phosgene and hydrogen chloride, wherein the

hydrogen chloride is present in an amount that is *shifted toward pure hydrogen chloride, but is at least 42 wt. % hydrogen chloride.* As a result, Cooper fails to disclose or suggest a phosgene/hydrogen chloride feed stream comprising *from 1.3 wt. % to less than 10 wt. % hydrogen chloride*, as presently claimed.

Withdrawal of this ground of rejection is respectfully requested.

Responsive to the Official Action, the specification has been amended to include a brief description of the drawing.

Applicants wish to note that consideration of the references cited on the Information Disclosure Statement submitted on June 7, 2005, has not been acknowledged. More specifically, the references do not appear to have been considered, as the Examiner's initials are notably absent with respect to these references. Applicants respectfully request that the Examiner acknowledge consideration of these references by providing Applicants with an initialed copy of the PTO-1449 Form submitted on June 7, 2005, at the Examiner's earliest convenience. A copy of this PTO-1449 Form, along with a copy of the date-stamped filing receipt evidencing the timely filing thereof, are appended herewith for the Examiner's convenience.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

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Due Date June 20, 2005

OSMM&N File No. 272974US0PCT By NFO/lit/FF

Serial No. New U.S. PCT Application based on PCT/EP03/14290

In the matter of the Application of Andreas WOELFERT, et al.

For PREPARATION OF ISOCYANATES

The following has been received in the U.S. Patent Office on the date stamped hereon:

- ■ 10 pgs. Specification 8 Claims (English Translation)
- ■ Combined Declaration, Petition & Power of Attorney (4 pages)
- ■ Application Data Sheet
- ■ Notice of Priority
- ■ Dep. Acct. Order Form
- ■ Credit Card Payment Form for $900.00
- ■ Drawing (1 sheets)
- ■ PCT Transmittal Letter
- ■ Preliminary Amendment
- ■ PCT/IB/304
- ■ PCT/IB/308
- ■ Information Disclosure Statement
- ■ PTO-1449
- ■ Cited References (5)
- ■ Statement of Relevancy
- ■ International Search Report
- ■ Translation of Annexes to International Preliminary Examination Report Amended Sheets (page 9)

SERIAL NO. _____

DATE RECEIVED _____